

## Comparison of Pharmaceutical Effects of Malvaceae with Conventional Antibiotics Used in Hospitals against Resistant Bacteria

Majid Dousmohamadi\*<sup>1</sup>; Hamed Shahirfar<sup>1</sup>; Shoukofe Nouejo<sup>1</sup>; Arezou Taalali<sup>2</sup>

1-Department of Microbiology, Zanjan Branch, Islamic Azad University, Zanjan, Iran

2-Department of Plant physiology, Marand Branch, Islamic Azad University Marand, Iran

majiddousti25@yahoo.com

**Background & Objectives:** Today according to the side effects of antibiotics and increased resistance of bacteria and fungi, there are more trends to the use of non-chemical pharmaceuticals which have more effectiveness and fewer side effects. The Malvaceae has long been used in traditional medicine for treatment of throat infections, cough, cold and that of squirt. The aim of this investigation is the comparison of pharmaceutical effects of Malvaceae with that of conventional antibiotics used in hospitals for treatment of infectious diseases, in order to propose a new pharmaceutical compound.

**Methods :** In order to study the pharmaceutical effects of Malvaceae, ethanol and aquatic extracts of the leaf of Malvaceae were prepared. Then extracts were compared with tetracycline, gentamicin, riphampine and trimethoperim as antibiotics which are currently used in the treatment of diseases originated from four gram positive and negative bacteria (*Streptococcus pyogenes*, *Staphylococcus aureus*, *Klebsiella pneumoniue* and *Pseudomonas aeruginosa*) using well-based diffusion in agarose containing cultures.

**Result:** Results indicate that the leaf of Malvaceae has anti microbial effects on the gram positive and negative bacteria and this effects are more profound in aquatic extracts relative to that of ethanol one. It was also found that higher concentrations of these extracts are better relative to antibiotics.

**Conclusion:** Overall, the results of in vitro studies shows that ethanol and aquatic extracts of the leaf of Malvaceae are effective when compared with antibiotics and it is noteworthy that this plant may be used as a herbal pharmaceutical in the treatment of microbial infections, which in turn, results in reducing the consumable dose of synthetic antibiotics. It may also used as an alternative treatment for diseases originated from above mentioned bacteria.

**Keywords:** Anti Microbial Effects; Drug Resistant; Malvaceae